An unusually large proportion of the birds whose life histories make up the present part are species with which Mr. Nehrling is personally familiar; as a result most of the biographies are original and more than ordinarily interesting. Mr. Nehrling not only loves birds, but he has a keen ear for the harmonies of nature. "The Bobolink," he says, "never sings before sunrise. It begins its sweet music when the more earnest and solemn melody of the Robin, which was heard from earliest daybreak, is almost at its close. Nature seems to have ordained that the serious part of her musical entertainment in the morning hours should be heard first, and that the lively and merry strains should follow them. In the evening this order is reversed, and after the comedy is concluded nature lulls us to repose by the mellow notes of the Vesper Sparrow and the pensive and still more melodious strains of the solitary Thrush." C. H. M.

The Book of Antelopes. By P. L. Sclater and Oldfield Thomas. With colored plates by Wolf and Smit. 4°. London, R. H. Porter, 1895–96.

Since the notice of parts I. and II. of this admirable work (Science, April 5, 1895, p. 389) the first volume has been completed and one part of the second has appeared. Vol. I. contains 220 pages and twenty-four handsomely colored plates, besides numerous useful figures in the text.

Parts III. and IV. treat of the duikers (genus *Cephalophus*), and part IV., which completes the first volume, closes with an account of the four-horned antelope (*Tetraceros quadricornis*). The duikers, unlike most of the antelopes, live in brush and forests. They inhabit Africa south of the Sahara, and most of the species are restricted to West Africa. Twenty species are recognized, ranging in size 'from that of a small donkey down to that of a hare.' As a rule they are handsomely colored, though most of them lack the striking and, in some cases, startling recognition markings that characterize some of the other groups. A few of the species, however, as the banded duiker (*C. doriæ*) and the yellow-backed duiker (*C. sylvicultrix*), are conspicuously marked.

Part V., comprising ninety-two pages and six colored plates, takes up the African subfamily Neotraginæ and treats of the klipspringer (*Oreotragus*), the oribis (*Ouretria*), the grysbok and steinboks (*Raphicerus*), the Zanzibar and Livingstone's antelopes (*Nesotragus*), the royal antelope (*Neotragus*) and the dik-diks (*Madoqua*).

The book of Antelopes is a timely work and it is matter for congratulation that the colored plates prepared under the supervision of the late Sir Victor Brook more than twenty years ago are finally given to the public accompanied by such authoritative letter press. If the distinguished authors have erred in the treatment of certain species it is on the side of conservatism, and it must be admitted that they have enjoyed unsurpassed opportunities for the study of the living animals at the Zoölogical Society's Gardens, of which the senior author has had charge for nearly forty years, and for the study of skins and skulls in the rich mammal collection of the British Museum, of which the junior author has long been curator.

Still, one is filled with regret at the large number of species unrepresented, or at most imperfectly represented, in museums, and it is sad to feel that many species are on the road to rapid extinction. Before it is too late sportsmen as well as naturalists should spare no pains to secure specimens of the rarer kinds and see that they reach some of the larger museums, where their permanent preservation will be guaranteed. C. H. M.

Chemistry for Engineers and Manufacturers. By Bertram Blount, F. I. C., F. C. S. and A. G. Bloxam, F. I. C., F. C. S. *Vol. I.—Chemistry of Engineering, Building and Metallurgy.* Philadelphia, J. B. Lippincott Co. London, Charles Griffin & Co., L't'd. 1896. 8vo, 244 pp., Illust. $3.50.

This is the first volume of a small and concise work on Chemical Technology, which is especially intended for engineers, architects, builders and factory superintendents, as well as students of chemical technology. It is intended primarily for those whose knowledge of chemical theories and processes is limited, but so skilfully is the subject-matter presented that even trained chemists and expert engineers may find the

book helpful. All descriptions of processes and apparatus are necessarily much condensed, matters of detail being relegated to the larger handbooks and monographs on special subjects, which, in the opinion of the reviewer, is their proper place. But the addition of references to the larger and special works, either as footnotes or otherwise, would have materially increased the value of the book without altering its character as an elementary work.

The present volume consists of two parts, the first being devoted to a general introduction and Part II. to Metallurgy.

The four introductory chapters are each given to a special topic. Chapter I., 'The Chemistry of Materials of Construction,' treats of the properties of stone, brick and concrete, roofing materials, the structural metals, and the strength, permanency and preservation of these substances. Chapter II. deals with 'The Chemistry of the Sources of Energy,' viz.: solid, liquid and gaseous fuels, electrical heating, measurement of temperature, direct conversion of chemical into electrical energy and the natural forms of kinetic energy. 'The Chemistry of Steam Raising' is the title of the third chapter, which has for its subjects, water and the methods of purifying and softening it for use in boilers. 'The Chemistry of Lubricants and Lubrication' is briefly disposed of in some seven pages, forming the fourth chapter.

Part II., comprising about one-half of the book, is a fairly complete though condensed presentation of the subject of Metallurgy in all its branches. The commercially important metals, some nineteen in number, are here included, their chief ores described and the processes of their extraction set forth in a brief and readable manner. Many of the important appliances and parts of smelting and refining plants are illustrated by cuts. Numerous tables of analyses of ores and of finished products are scattered through the text. In these days of popular interest in mining and metallurgical schemes, it would seem that this section should lend the book an attraction to many persons in commercial life, though they may have little or no scientific education. The facts are so clearly and tersely stated and illustrations are so frequent that any one of average intellect, though not a chemist or engineer, should have no difficulty in understanding the work. Technical terms and chemical symbols are frequently used, it is true, but in the case of the latter the common names of the substances are also stated, hence no confusion need result.

But it is to the teacher of chemistry and metallurgy, having to deal with young students, where an elementary treatise, short and compact in its nature is desired, that this book will be most welcome. Here are found the essential facts without those mystifying details which often become magnified to undue proportions in the mind of the student.

A very complete index, free from mistakes or misprints, closes the volume.

If the second volume, covering the field of manufacturing chemistry, be as well done as this, a valuable addition will have been made to the mass of chemical literature.

FRANK H. THORP.

The Chemistry of Pottery. By KARL LANGENBECK. Easton, Pa., Chemical Publishing Co. 1896. 12 mo., pp. 197.

In this little book the author has collected and systematically arranged some of the results of an extended experience in the manufacture of pottery and tiles. The chemical bearing of each subject in its relation to the object desired is made the chief element of the work. Analyses of the materials are taken as the basis on which to calculate rational formulæ for the production of certain results.

The book is divided into fifteen chapters, each treating of a separate subject, a few of which may be mentioned. In Chapter I, Analysis of Materials and Products, and in Chapter II., Physical and Empirical Tests, are explained. The subject of Chapter III. is Pyrometry, a matter of great interest to the pottery maker, since the success of his work depends, in great measure, on the proper heat in his furnace. Estimation of the temperature becomes a matter of experience with the burner, who often acquires much skill in producing some one kind of ware in a given furnace. But if called upon to burn other ware than that to which he is accustomed, or to use different fuel, or a kiln of different construction, failure may be the result. The author